

ABSTRACT OF THE DISCLOSURE

In a hydrocarbon production well, a control processor 32 selectively sends light to each of one or more gas lift valves 28 to cause injection of an injection fluid (such as nitrogen gas) from a pressurised annulus 22 into a production fluid (hydrocarbon) in production 18 tubing, and/or to each of one or more inlet valves 60, to control the rate of flow of the hydrocarbon (oil). The control processor 32 receives feedback data from sensors 48 54 50 66 near to each gas lift 28 or inlet 60 valve and otherwise provided in the well bore which measure pressure, temperature or flow rate. The sensors communicate by sensor fibre optic lines 42 which run in the well bore 10. The control processor 32 sends control signals by operating a laser light source to selectively to send laser light to each valve 28 60 through valve operating light fibres 36 which also run through the well bore 10. The valves 28 60 derive their motive power from the laser light using a photovoltaic cell array 58 which drives an actuator 68 which can be piezo electric, an electric motor or solenoid.